

# IEEE ISPCE 2022

IEEE International Symposium on  
Product Compliance Engineering

SEPTEMBER 20-22, 2022 | SAN DIEGO

## ISPCE 2022 SYMPOSIUM PROGRAM

Please visit our website  
for more information!

[2022.psessymposium.org](https://2022.psessymposium.org)

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## WELCOME MESSAGE

Welcome to sunny San Diego and Southern California!

The Double Tree by Hilton Hotel Mission Valley San Diego located on Hazard Center is a first-class venue that will accommodate all the needs of our growing conference's participants and attendees. On behalf of the entire conference management leadership, *we hope it exceeds your expectations.*

It's our first ISPCE major event following the COVID19 pandemic, being in a hiatus since 2020 except for the ISPCE 21 virtual event which many of you participated in. We are excited about getting together for ISPCE 22, the 18<sup>th</sup> such event which returns once again to beautiful San Diego. We hope everyone has a fantastic experience from the stimulating programs, professional networking with colleagues and friends, not to mention great food.

Many of you have attended past ISPCEs, but for others, this will be your first experience. We are committed to building on our highly regarded technical programs to satisfy your professional interests.

Our event Technical Committee Chair, Grant Schmidbauer, Secretary Mariel Acosta-Galliano and eleven 11 technical track program chairs have assembled another great program that will inspire a broad array of interests ranging from the basics covered in "Product Safety 101" to state of the art, technical topics covering the latest global regulatory issues.

We are confident you will find exactly what you need to fulfill your interests along with great opportunities to learn about merging technologies so pertinent in our futures. We want this to be a rich experience for you and a benefit to your company.

This conference is dedicated to engineers, administrators, entrepreneurs and leaders developing and manufacturing safe and compliant products marketed in virtually any region of the world. Perhaps the most lasting impact of our conference is the opportunity to meet and develop relationships with other professionals that will last throughout each of our careers. Technology and society always changes, providing unlimited challenges.

By working together through our IEEE society, we can optimize our professional experiences.

Welcome... Enjoy the conference!



Bansri Patel  
ISPCE 2022 Co-Chair  
VP of Conferences of PSES



Jim Bender  
ISPCE 2022 Co Chair  
PSES Dallas Chapter Chair

## ISPCE 2022 SYMPOSIUM COMMITTEE

### **General Co-Chair**

Bansi Patel, BRP Consultant, USA

### **General Co-Chair**

Jim Bender, Intertek, USA

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Grant Schmidbauer, Nemko, USA

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#### **Global Market Access Track**

Maja Bland, UL Solutions, USA

#### **Compliance 101 Track**

John Allen, Product Safety Consulting, Inc, USA

#### **EMC and Wireless Track**

Jim Bacher, IEEE, USA

#### **Ethical Cornerstones of Effective Compliance Track**

Jim Bender, Intertek, USA

#### **Medical Track**

Rich Gardner, Amazon, USA

Fabio Furlan, CSA Group, USA,

#### **Global Hazardous Locations Track**

Paul Kelly, UL Solutions, LLC, USA

Jerilyn Merrill, UL Solutions, LLC, USA

#### **HBSE/Safety Science Track**

Tom Lanzisero, UL Solutions, LLC, USA

#### **Legal Track**

Arun Kapoor, Noerr LLP, USA

Ted Dorenkamp, Bowman and Brooke LLP, USA

#### **Forensics Track**

Daren Slee, Exponent, USA

#### **Environmental/Energy Track**

Bansi Patel, PSES, USA

#### **Battery Track**

Rich Byczek, Intertek, USA



## **Room Hosts**

### **Tuesday**

Bansi Patel, PSES, USA  
Daren Slee, Exponent, USA  
Jim Bacher, IEEE, USA  
Jim Bender, Intertek, USA  
John Allen, Product Safety Consulting Inc, USA  
Maja Bland, UL Solutions, USA  
Rich Byczek, Intertek, USA  
Todd Konieczny, Intertek, USA

### **Wednesday**

Jerilyn Merrill, UL Solutions, LLC, USA  
John Allen, Product Safety Consulting Inc, USA  
Paul Kelly, UL Solutions, LLC, USA  
Purab Mecwan, OnRule, USA  
Ted Dorenkamp, Bowman and Brooke LLP, USA

### **Thursday**

Bansi Patel, PSES, USA  
Jim Bacher, IEEE, USA  
Jim Bender, Intertek, USA  
John Allen, Product Safety Consulting Inc, USA  
Maja Bland, UL Solutions, USA  
Grant Schmidbauer, Nemko USA, Inc., USA

## **Conference Management**

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## PSES BOARD OF DIRECTORS

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Past-President	Stefan Mozar
Treasurer	Wen-Chung Kao
Vice President - Communications Services	Michael Anderson
Vice President - Technical Activities	Steli P. Loznen
Secretary	Daniece Carpenter
Vice President - Conferences	Bansi Patel
Vice President – Publications	Kim Fung Tsang
Vice President – Membership Services	Jong-Moon Chung
Vice President – Education	Supavadee Aramvith

### Members at Large

#### Term Expires 12/22

Leszek Langiewicz  
Fabio Furlan  
Silvia Diez Monnier  
Grant Schmidbauer

#### Term Expires 12/23

John Allen  
Wen-Chung Kao  
Jeff Pasternak  
Bansi Patel

#### Term Expires 12/24

Supavadee Aramvith  
Steli P. Loznen  
Paul Robinson  
Thomas Lanzisero

### Committees

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# Product Regulatory Compliance

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## ISPCE 2022 GENERAL INFORMATION

### Welcome Reception

Welcome to the IEEE Symposium on Product Compliance Engineering. The Symposium Steering Committee invites attendees to join old friends and meet new acquaintances at the ISPCE 2022 Welcome Reception on Tuesday, September 20th, 6:00 PM – 7:30 PM. The Welcome Reception will be held in the exhibit hall and is included with your registration.

### Exhibit Hours

	Morning	Lunch	Afternoon	Evening
Tuesday	8:30 AM – 10:00 AM	12:00 AM – 1:10 PM	3:20 PM – 3:50 PM	6:00 PM – 7:30 PM Reception
Wednesday	8:30 AM – 10:00 AM	12:00 AM – 1:10 PM	3:20 PM – 4:00 PM	

\*Exhibits will be closed during technical sessions

### Registration Hours

Monday	4:00 PM – 6:00 PM
Tuesday	8:00 AM – 6:00 PM
Wednesday	8:00 AM – 5:00 PM
Thursday	8:30 AM – 4:00 PM

### Best Paper Nominees

The Best Paper Award shines a light on some great papers. We are embarking on an initiative to increase the authorship of formal papers at the ISPCE symposium. We want the PSES to be the source that professionals go to first for critical information on product safety engineering and compliance issues. So, check out the Best Paper Nominees at our award ceremony and think about a topic that could make you a winner!

### Special Meetings

*Speaker Breakfast:* On the day of your presentation, please join us for a special Speaker Breakfast in Brickstones. Breakfast will be available from 8:00 AM – 9:00 AM.

*Exhibitor Breakfast:* On each day you exhibit, please join us for a special Exhibitor Breakfast in Brickstones. The time for breakfast is from 7:00 AM – 8:00 AM.

**Chapter Annual Meeting**

**Location:** Great Room I,II,III

The CAM is set for Wednesday September 21 at 6pm. If you are a chapter leader – or would like to be one – please join us to share chapter ideas and issues. In the areas where we already have chapters, our members enjoy meeting regularly with fellow product safety and regulatory professionals. IEEE has tremendous resources to help chapters. Our society wants to help you access those resources to build a dynamic program for members.

Want to start a new PSES chapter? We can help guide you with that. As a professional society, we would like all our members to have access to regular chapter meetings. Come to the CAM and help us do it!

**Technical Committee for Compliance 101/201**

**Location:** Shutters West I&II

Compliance 101 is a high-level education on Product Safety and Certifications - the Landscape and Industry, Common requirements and testing regardless of product category, and Global Market Access.

It was created to teach those new to product safety and certifications and for those who have it as part of their many other responsibilities.

As a Technical Committee we are developing a full Training program, including Certifications for Compliance Engineers. Safety touches all disciplines and the vision is to have it as an elective in University Engineering programs.

We invite you to join the Compliance 101 Technical Committee whether you need the education or want to share your knowledge.





Companies around the world trust Nemko to assess their products, systems, installations, and personnel for conformity with relevant standards and regulations.

Since 1933, we have ensured that our customers comply with requirements anywhere in the world. Our services include pre-compliance, product testing, product certification, international approval, cyber assurance, field evaluation, and management system certification.

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We provide a local presence coupled with global knowledge.

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## KEYNOTE SPEAKERS

**Tuesday, September 20, 2022**

**Time: 9:00 AM**



**Jim Bender, P.E.**

*Senior Staff Engineer Intertek (Plano, TX) North Texas IEEE Product Safety Engineering Society Co-Founder and Chair*

### **Bio**

Jim Bender, P.E. is currently a Senior Systems Engineer at Intertek. His responsibilities include developing new product safety certification testing approaches for emerging technologies and applications, customer support in high technology safety certifications and mentoring professional engineering talent in the art of product safety.

Prior to joining Intertek, Jim retired from Texas Instruments following a near forty year career as a Senior Member Technical Staff, and Director of Regulatory Compliance and Product Safety. His responsibilities included leadership roles in product safety and regulatory compliance, resulting in many new proactive compliance initiatives and industry firsts, industry standards developments and new product category certifications covering a broad offering of new technology product introductions.

Jim is the current chair and co-founder of the North Texas IEEE Product Safety Engineering Society, a graduate of Purdue University (BSEE/MSE) and a Registered Professional Engineer in the State of Texas.

### **Abstract**

#### **Ethics in Engineering, Making the Right Choices**

This audience interactive engagement provides a lively and stimulating real-life overview highlighting regulatory compliance challenges often associated with time critical high technology product releases.

The 100% fact-based reenactment pulls in audience participation focusing on engineering and management obligations and “gut checks” often encountered with potential ethical vs. legal conflicts associated with new product development, manufacturing and market introduction.

The presentation and ensuing discussions will cover specific legal vs. ethical influencing cornerstones, identification and leverage of the “newspaper test”, the importance of protecting a company’s reputation and the influencing roles and obligations for product regulatory/safety professionals based on a real-life example.

What makes this presentation unique are the “what would you do/what-if” scenarios associated with regulatory compliance challenges impacting critical product release expectations.

## KEYNOTE SPEAKERS

Wednesday, September 21, 2022

Time: 9:00 AM



**Steve Reinecke**  
*Proximity Systems*

**Bio**

Steve Reinecke is the Chief Scientist and Regulatory Compliance Officer at Proximity Systems / UV-Clean in Houston, Texas, USA, and the Executive Director of CHAIR – The Coalition for Community and Healthcare Acquired Infection Reduction in Canada. Steve is a Clinical Scientist and business consultant and shares his time between his small hometown of Strathroy, Ontario, and his boat in Sarnia, Ontario. Steve has worked for international companies in the healthcare industry, traveling to over 30 countries. He is a Clinical Scientist and Certified Professional of Health Information Management Systems (HIMSS – CPHIMS) and is working toward his APIC CIC Certification. Steve is also an active member of the IUVA – International Ultraviolet Association.

**Abstract****UVC and Copper in Disinfection - The Good, the Bad and the Ugly**

In our daily lives, we encounter multiple surfaces that have been previously touched by someone else. High-touch surfaces are found everywhere. We have self-checkout at the grocery store. We have options to order our meals on a touch-screen before getting in line. There is the pin pad on the point-of-sale device at 1000's of retail outlets. We hold the handrail on a bus and train. When traveling, we are encouraged to "check in" at a kiosk prior to engaging a live person. All these surfaces have recently been touched by someone else and are not routinely cleaned, and if they have been, there is a high likelihood that the instructions on the liquid cleaning products they are using were not followed. The pandemic has brought to light many new technologies and engineering innovations. We will discuss how copper and UV disinfection technologies are increasingly providing options for the disinfection of surfaces and indoor environments. This presentation will educate participants on what UVC is and how it works to disinfect surfaces, air, and water. We will compare liquid disinfection products and see how they work. We will discuss how copper is a naturally antimicrobial element that is recognized by the EPA. We will discuss what to look for when purchasing a UVC disinfection device. Topics will revolve around understanding claims of efficacy, safety, and regulatory restrictions. We will discuss questions a purchaser should be prepared to ask a manufacturer of the UVC product before purchase and help purchasers understand, "If something seems too good to be true, it is probably is too good to be true". Lastly, we will give examples of false and misleading product claims and have an open discussion with all participants in the session.



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## ISPCE 2022 PATRONS

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### Platinum Patrons

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The Intertek logo features the word "intertek" in a lowercase, sans-serif font. A small yellow dot is positioned above the letter "i".

The OnRule logo consists of the word "OnRule" in a sans-serif font. The "On" is in blue, and "Rule" is in black.

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### Gold Patrons

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The Nemko logo features the word "Nemko" in a bold, sans-serif font. The "N" is enclosed within a blue circular graphic.

The AEK logo features the letters "AEK" in a stylized, blue, sans-serif font. The letters are interconnected, with the "A" and "E" sharing a common vertical stroke.

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### Silver Patron

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The UL Solutions logo features the UL logo, which consists of the letters "UL" in white inside a red circle. To the right of the circle, the word "Solutions" is written in a red, sans-serif font.

## ISPCE 2022 EXHIBITORS

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### Advanced Test Equipment Corp. (ATEC)

Advanced Test Equipment Corp. (ATEC) is a leading provider of test & measurement equipment rentals, sales, calibration, and service. Since 1981, test engineers, government agencies, and Fortune 500 companies have relied on ATEC to guide them to the right equipment, ship it quickly, and offer them the industry's best technical expertise and customer care. ATEC's broad inventory includes EMC, Power Supplies & Loads, RF Safety, Electrical, NDT, Environmental, Communications, and General Purpose test equipment. Explore the ATEC inventory at [www.atecorp.com](http://www.atecorp.com).

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### Energy Assurance LLC

Energy Assurance LLC is a fully accredited laboratory specializing in the regulatory compliance, performance testing, and failure analysis of cells and battery packs. Established in 2009, Energy Assurance is headquartered in Gainesville, Georgia with a large-format cell performance testing facility in Hopkinton, Massachusetts. It was founded by Cindy Millsaps (Founder & CEO) and John Copeland (Founder & CTO). Combined, they have over 50 years of experience in the portable energy arena. Energy Assurance's independent accreditations include ISO 17025 through A2LA covering a multitude of cell and battery test standards; UL Certificated Agent and Data Acceptance Program lab (Third Party Test Data Program); TÜV-SÜD Certification After Recognition of Agents Testing (CARAT) lab; SGS Approved Laboratory; and IECEE Certified Body Testing Laboratory (CBTL) for the product category BATT. In 2022, Energy Assurance was acquired by Element Materials Technology which boasts a diverse network of over 200 testing laboratories in 34 countries.

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**G&M Compliance, Inc.**  
Fast Compliance, First to Market

### G&M Compliance

Since 1996, G&M Compliance has provided manufacturers with solution based product regulatory and certification services. We offer Product Safety, EMC/EMI, International homologation and consulting services. We assist manufacturers with obtaining product certifications to UL, CSA, CE, EN, IEC, FCC, European, China CCC, India BIS, S. Korea KC, Russia EAC as well as international standards. Additionally, we offer a Homologation Management Service (HMS) for companies looking for a comprehensive product homologation solution. We specialize in information technology (ITE), network telecommunication, audio & video, medical, laboratory, control, measurement, automotive and machinery equipment

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## Global Validity

Global Validity's AccessManager is an automated, end-to-end country certification management platform and integrated service provider marketplace representing over 200 countries and territories.

Developed five years ago, it enables global electronic manufacturers and country certification providers to work collaboratively, significantly improving the certification process and time to market.



### HV Technologies, Inc.

HV TECHNOLOGIES, Inc. is a prominent supplier of High Voltage and EMC test equipment. We have a century of experience and dedication in serving the testing equipment needs for the power utility, power apparatus, and electronic equipment industries.

## IN COMPLIANCE

### InCompliance

In Compliance delivers coverage on the latest standards updates, global compliance news, and engineering developments as well as technical explanations & guidance to over 17,000 electrical engineering professionals worldwide. Discover the latest design practices and testing tips, stay current with important updates, learn fundamental concepts, explore current events, and more! Visit [incompliancemag.com](http://incompliancemag.com) to start exploring and to activate your free subscription.



### Intertek

For more than a 130 years, companies around the world have depended upon Intertek's product testing expertise. Our ETL Certification mark is recognized by manufacturers, distributors, retailers, and inspectors across North America as proof of compliance to electrical safety standards.

Through our global network of state-of-the-art facilities and industry-leading technical expertise, we deliver Total Quality Assurance expertise 24 hours a day, 7 days a week to ensure that our customers' products, processes and systems meet quality, health, environmental, safety and social accountability standards for virtually any market around the world.

We hold extensive global accreditations, recognitions and agreements, and our knowledge of and expertise in overcoming regulatory, market and supply chain hurdles is unrivalled.

We offer accredited group and individual training in-person and virtual, for manufacturers around the world who rely on Intertek's experts to help them meet all of their safety and quality requirements.

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### Nemko

Nemko is your complete source for compliance testing, certification and worldwide market access. Nemko provides one local point of contact for all major market certifications using our Nemko Direct network. Nemko offers EMC, Wireless, Electrical Safety, Field Evaluation/Special Inspection and Environmental testing and certification services, to meet the most complex compliance needs. To ensure success within design-to-deployment phase, Nemko also offers "pre-compliance" reliability testing with our team of experienced engineers.

Our global network of certified laboratories can provide US and Canadian NRTL Safety certification, as well as CB certification for wide variety of wide scope of products and standards. Nemko stands out as a certification body (TCB) that provides certifications for the US, Canada, Taiwan, Hong Kong and Japan.

As a leader in global market access, Nemko offers international telecom and type approval certifications for more than 150 countries. With 24 locations worldwide, experienced international staff, and personalized service, Nemko is strategically positioned to provide on time testing, inspection and certification support. Choose Scandinavian trust and visit our website at [nemko.com](http://nemko.com) more information.



### OnRule

OnRule is a world-leading cloud-based software platform to manage the product regulatory compliance. OnRule enables enterprises to rapidly launch new products in the global marketplace by accelerating the product certification process, streamlining collaboration, and delivering up-to-date global regulatory intelligence.

OnRule organizes the compliance records by products, markets, record types, and record disciplines. It creates SmartCerts™ enabling a quick search and secured sharing; the view-only privileges allow the internal and external stakeholders to have visibility on the compliance status and records.

The notifications of upcoming expirations alert the compliance team, prevent stop ship and ship hold; and enable proactive budgeting and allocation of resources. The Standards Update Notifications inform the enterprises of upcoming changes in the standards and identify the impacted products and records portfolio.





### Orbis

ORBIS Compliance is a strategic partner to manufacturers around the world looking for in-depth regulatory knowledge, and dependable and reliable execution of their product compliance strategy for Latin America and Asia.

ORBIS is industry-recognized for being able to "Solve the problems that others can't." ORBIS' engineering and legal experts have in-depth, technical and regulatory knowledge in the telecom, safety, energy efficiency, battery, medical and environmental fields. The hallmark of our culture is accurate execution and accelerated in-country testing and product certifications in the Latin American, Caribbean and Asian regions.

Our time-to-market strategy is fast, and attributed to our direct relationships with regulatory agencies. ORBIS' mission is driven by our clients' need to succeed with their regulatory needs.



### Spira EMI Gaskets

Spira EMI gaskets are well known for solving EMI shielding problems that no other gasket can solve. Perfect for aerospace applications, gaskets are designed to be highly reliable, lightweight and built to last the life of the system. ISO 9001/AS9100 certified, expert technical support, and made in the USA.



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### TÜV SÜD

TÜV SÜD is a globally recognized, testing and certification organization that specializes in testing, inspection, auditing, certification, training, and knowledge services. Since 1866, the company has remained committed to its founding principle of protecting people, property, and the environment from technology-related risks.

TÜV SÜD's Product Service division services for the Electronic and Electrical Products industry includes NRTL and SCC certification, CE Marking, CB Scheme, Wireless Certification, CDMA, GSM and LTE testing services, Functional Safety testing and Global Market Access, and much more.

**Solutions****UL Solutions**

A global leader in applied safety science, UL Solutions transforms safety, security, and sustainability challenges into opportunities for customers in more than 100 countries. UL Solutions delivers testing, inspection and certification services, together with software products and advisory offerings, that support our customers' product innovation and business growth.

In the course of our work we meet extraordinary people whose companies are having an extraordinary impact on the world and creating the future. UL Solution's rigorous scientific processes, experience and solutions empower our customers to innovate fearlessly and drive positive change.

We never stop working for a safer world and our offerings continue to evolve with advancements in science and technology. We provide testing, inspection and certification (TIC), training, advisory and risk management services, decision-making tools and intelligence to help our customers, based in more than 100 countries, meet important business objectives.

**Vitrek**

Since 1990, Vitrek has provided innovative global solutions for High Voltage Test and Measurement. Our advanced automated Electrical Safety Compliance Testers verify insulation integrity and ground bonding on a single device or a complex system. Our multi-point HV scanners automatically route voltages up to 15KV to hundreds of test points.

Vitrek supplies Precision High Voltage Measurement Standards to national laboratories and calibration labs around the world and our Graphical Power Analyzers set the standard for world class performance at a very economical price. In addition to manufacturing superior quality test and measurement equipment, Vitrek is also an ISO 17025 accredited calibration laboratory.

This unique combination of capabilities positions Vitrek as a world leader in providing test solutions to the photovoltaic, medical equipment, power conversion, electrical component and appliance industries. Our team of application specialists can assist you in configuring the right solution for your test requirement. And you can count on team Vitrek to supply not only the very best equipment, but also the ultimate in customer support

**VITREK**

## PSES AWARDS

The IEEE PSES is looking back at the prior two-year period of 2020 and 2021 for PSES award nominations, to be presented at the awards ceremony at ISPCE 2022, in San Diego, CA, September 20-22, 2022.

### **Sustained Service Award – IEEE PSES Plaque Award**

Description: To recognize members of the IEEE Product Safety Engineering Society for their sustained service to the Society in a given calendar year.

Prize: Plaque of Appreciation and a monetary gift of US\$500.

Funding: Funded by the IEEE Product Safety Engineering Society.

Eligibility: Sr. member (Senior, Life or Fellow) in good standing with IEEE Product Safety Engineering Society. The recipient must have served at least one term on the Board of Directors/Board of Governors of the PSES since the inception (including the time as a technical society within the EMCS) or served at least one term as part of the executive team (ExComm).

Basis for Judging: Sustained service to the IEEE Product Safety Engineering Society for an extended period of time (ie, >10 years), dedicating their time and efforts to support the development of the PSES.

Presentation: IEEE PSES awards are presented annually at the awards ceremony during ISPCE.

### **Service Acknowledgment Award** **IEEE PSES Certificate of Appreciation Award**

Description: To recognize members of the IEEE Product Safety Engineering Society for performing a service to the Society in a given calendar year.

Prize: Certificate of Appreciation.

Funding: Funded by the IEEE Product Safety Engineering Society.

Eligibility: Member of the IEEE Product Safety Engineering Society. Basis for Judging: Service to the IEEE Product Safety Engineering Society.

Presentation: IEEE PSES awards are presented annually at the awards ceremony during ISPCE

**Service Acknowledgment Award**  
**IEEE PSES Certificate of Recognition Award**

Description: To recognize non-members of the IEEE Product Safety Engineering Society for contributions to the Society in a given calendar year.

Prize: Certificate of Recognition.

Funding: Funded by the IEEE Product Safety Engineering Society.

Eligibility: Non-member of the IEEE Product Safety Engineering Society. Basis for Judging: Contributions to the IEEE Product Safety Engineering Society.

Presentation: IEEE PSES awards are presented annually at the awards ceremony during ISPCE

**IEEE PSES Chapter-of-the-Year Award**

Description: To recognize the most outstanding IEEE Product Safety Engineering Society chapter in recognition of their contributions to and promotion of the Society through its meetings, programs, and member services. This award is to be provided for activities in the previous calendar year.

Prize: Certificate and \$250 – Given to the Society chapter recognized for promotion of PSES through meetings, programs, and services. The name of the Society shall appear prominently on the certificate associated with the award.

Funding: Funded by the IEEE Product Safety Engineering Society.

Eligibility: This award is given to the most outstanding Society chapter in recognition of its contributions to and promotion of the Society through its meetings, programs, and member services. A Chapter of-the-Year winner in one year shall not be eligible in the subsequent year. Please see this link for the Chapter of year questionnaire.

Basis for Judging: The awards program shall be coordinated by the Chapter-of-the-Year Administrator under the oversight of the Awards Committee and responsibility of the VP – Member Services. This award is given to the most outstanding Society chapter in recognition of its contributions to and promotion of the Society through its meetings, programs, and member services. The award is for the year immediately prior to the award presentation.

Presentation: IEEE PSES awards are presented annually at the awards ceremony during ISPCE.

## TUESDAY, SEPTEMBER 20, 2022

8:00 AM - 8:40 AM	Speaker Breakfast – Brickstones			
8:30 AM - 8:50 AM	Continental Breakfast and Networking – Great Room V, VI, VII, VIII			
9:00 AM - 9:50 AM	Keynote Speaker – Jim Bender - Great Room V, VI, VII, VIII			
9:50 AM - 10:00 AM	Transition/Networking			
Rooms	Shutters West I & II	Great Rooms I, II, & III	Great Room IV	Shutters East I & II
10:00 AM - 10:50 AM	<b>Electric Shock Measurement</b>  <i>Richard Nute</i>  Session Chair: John Allen	<b>Laboratory Safety and Ethics</b>  <i>Kacy Stanfill</i>  Session Chair: Jim Bender	<b>India Certification Overview (BIS – Safety, WPC – Wireless and TEC – Telecom)</b>  <i>Kapil Saproo</i>  Session Chair: Maja Bland	<b>Lithium Battery Field Failures – Should you engage expert assistance?</b>  <i>John Copeland</i>  Session Chair: Rich Byczek
10:50 AM – 11:00 AM	Transition/Networking			
11:00 AM - 11:50 AM	<b>UL 60335-1 Ed. 6 - Standard for Safety of Household and Similar Electrical Appliances, Part 1</b>  <i>Luiz Claudio Bonilla de Araujo</i>  Session Chair: John Allen	<b>Product Safety – The Importance and Impact of Ethical Compliance Practices</b>  <i>Jim Bender Brunno Covolan</i>  Session Chair: Jim Bender	<b>Homologation tricks and tips</b>  <i>Thomas L Killam</i>  Session Chair: Maja Bland	<b>Codes and Standards for Stationary Energy Storage Installations - NFPA 855, UL 9540, and UL 9540A</b>  <i>Michael R Becker</i>  Session Chair: Rich Byczek
11:50 AM – 12:00 PM	Transition/Networking			
12:00 PM – 1:20 PM	Murlin Marks Tribute & Lunch – Great Room V, VI, VII, VIII			
1:20 PM – 1:30 PM	Transition/Networking			

Rooms	Shutters West I & II	Great Rooms I, II, & III	Great Room IV	Shutters East I & II
1:30 PM - 2:20 PM	<b>PSES Tutorial Part 1: Compliance 101</b>  <i>Ken Kapur</i>  Session Chair: John Allen	<b>Recognized Components and Ethical Compliance Obligations –Understanding and Fulfilling Conditions of Acceptability</b>  <i>Jim Bender</i>  Session Chair: Jim Bender	<b>Global Impact of Adding Wireless Technology to Products</b>  <i>Theresa Glenna</i>  Session Chair: Maja Bland	<b>Demystifying Batteries From Cell to End Product</b>  <i>Rich Byczek</i>  Session Chair: <i>Rich Byczek</i>
2:20 PM - 2:30 PM	<b>Transition/Networking</b>			
2:30 PM – 3:20 PM	<b>PSES Tutorial Part 2: Compliance 201</b>  <i>John Allen</i>  Session Chair: John Allen	<b>Regulations and Concerns for Wearable devices - Understanding on the possible safety and performance issues</b>  <i>Pamela Gwynn</i>  Session Chair: Todd Konieczny	<b>Mexico -Market Access and compliance changes 2022</b>  <i>Maja Bland</i>  Session Chair: Maja Bland	<b>UN 38.3 Updates and Beyond</b>  <i>Rich Byczek</i>  Session Chair: <i>Rich Byczek</i>
3:20 PM – 3:30 PM	<b>Transition/Networking</b>			
3:30 PM – 3:50 PM	<b>Afternoon Break, Exhibits, and Networking – Great Room V, VI, VII, VIII</b>			
3:50 PM – 4:00 PM	<b>Transition/Networking</b>			
4:00 PM - 4:50 PM	<b>PSES Tutorial Part 3: Global Market Access</b>  <i>Grant Schmidbauer</i>  Session Chair: John Allen	<b>Medical Device IEC 60601-1 compliance</b>  <i>Liam Iam</i>  Session Chair: Todd Konieczny	<b>Improving Safety in Europe – Detecting Counterfeit Certificates from FFP2 Masks: A Text-Mining Approach</b>  <i>Franz Wieck</i>  Session Chair: <i>Rich Byczek</i>	<b>New FCC RF Exposure Compliance Rules</b>  <i>Vina Kerai</i>  Session Chair: <i>Jim Bacher</i>

Rooms	Shutters West I & II	Great Room I, II, III	Great Room IV	Shutters East I & II
5:00 PM – 5:50 PM	<b>PSES Tutorial: Open Panel Questions</b>  <i>Grant Schmidbauer</i> <i>Ken Kapur</i> <i>John Allen</i>  Session Chair: John Allen	<b>Product Safety Standards and Integration of Sensors and Therapies</b>  <i>Todd R Konieczny</i>  Session Chair: Bansil Patel	<b>Forensic Analysis of Trucking and Equipment Accidents and Failures</b>  <i>Patrick D Riedlinger</i>  Session Chair: Daren Slee	<b>5G Wireless Technology and Developments</b>  <i>Tom Tidwell</i>  Session Chair: <i>Jim Bacher</i>
5:50 PM - 6:00 PM	Transition/Networking			
6:00 PM - 7:30 PM	Tuesday Reception – Great Room V, VI, VII, VIII			



## WEDNESDAY, SEPTEMBER 21, 2022

8:00 AM - 8:40 AM	Speaker Breakfast – Brickstones			
8:30 AM - 9:00 AM	Continental Breakfast and Networking – Great Room V, VI, VII, VIII			
9:00 AM - 9:50 AM	Keynote Speaker – Steve Reinecke – Great Room V, VI, VII, VIII			
9:50 AM - 10:00 AM	Transition/Networking			
<b>Rooms</b>	<b>Shutters West I &amp; II</b>	<b>Great Room I, II, III</b>	<b>Great Room IV</b>	<b>Shutters East I &amp; II</b>
10:00 AM - 10:50 AM	<b>Origins and Basics of Electrical Fire and Shock Protection</b>  <i>Mike Sherman</i>  Session Chair: John Allen	<b>Global Conformity Assessment of Equipment for Hazardous (Classified) Locations</b>  <i>Bill Fiske</i>  Session Chair: Paul Kelly & Jerilyn Merrill	<b>False or Incorrect Markings and Test Reports of EEE Parts</b>  <i>Steli Loznen</i>  Session Chair: Dorenkamp & Kapoor	<b>Taking a UVC Disinfection product through Regulatory Compliance</b>  <i>Steve Reinecke</i>
10:50 AM - 11:00 AM	Transition/Networking			
11:00 AM – 12:00 PM	Awards Ceremony, Coffee Break and Networking – Great Room V, VI, VII, VIII			
12:00 PM – 1:20 PM	Lunch, Exhibits and Networking – Great Room V, VI, VII, VIII			
1:20 PM – 1:30 PM	Transition/Networking			
1:30 PM – 2:20 PM	<b>The Importance of Understanding Critical Differences between Recognized Components and Listed Products</b>  <i>Maria N Martinez</i>  Session Chair: John Allen	<b>Why Influence Global HazLoc Standards?</b>  <i>Scott Kiddle</i>  Session Chair: Paul Kelly & Jerilyn Merrill	<b>Circular Economy and Sustainability – Upcoming Legal Challenges for Product Compliance on the European Market</b>  <i>Susanne Wende</i>  Session Chair: Dorenkamp & Kapoor	<b>The Role of Technology in the Management of Product Regulatory Compliance</b>  <i>Cyril Mecwan</i>  Session Chair: <i>Purab Mecwan</i>

2:20 PM - 2:30 PM	Transition/Networking			
Rooms	Shutters West I & II	Great Room I, II, III	Great Room IV	Shutters East I & II
2:30 PM - 3:20 PM	<b>On Product Warnings: ANSI Z535.4 and ISO 3864-2</b>  <i>Erin Earley</i>  Session Chair: John Allen	<b>Hydrogen Technologies for Refueling Station Facilities</b>  <i>Bob Deadman</i>  Session Chair: Paul Kelly & Jerilyn Merrill	<b>Responding to Injury Reports – Confronting Regulatory and Legal Risk</b>  <i>Ted Dorenkamp</i>  Session Chair: Dorenkamp & Kapoor	<b>Incident Power Density of Electrically-Large Planar Phased Arrays Communicating with Non-Geostationary Satellites</b>  <i>David R. Novotny, Nicholas Christensen, Shanay Kothari, Leszek Langiewicz</i>  Session Chair: <i>Purab Mecwan</i>
3:20 PM – 3:30 PM	Transition/Networking			
3:30 PM – 3:50 PM	Afternoon Break, Exhibits, and Networking – Great Room V, VI, VII, VIII			
3:50 PM – 4:00 PM	Transition/Networking			
4:00 PM - 4:50 PM	<b>Component Interchangeability for Compliance – Considerations Challenges and Improvements</b>  <i>Chintan Trivedi</i>  Session Chair: John Allen	<b>Designing Industrial Control Panels for Use in Hazardous (Classified) Locations</b>  <i>Aaron Roberts</i>  Session Chair: Paul Kelly & Jerilyn Merrill	<b>Product Safety Compliance – Current Legal Developments in Europe</b>  <i>Arun Kapoor</i>  Session Chair: Dorenkamp & Kapoor	
4:50 PM - 5:00 PM	Transition/Networking			
5:00 PM - 5:50 PM	<b>Risk Assessment Basics for EMC, LVD, and RED Directives</b>  <i>Patricia Knudsen</i>  Session Chair: John Allen	<b>HazLoc Equipment Manufacturers Audit Challenges, OSHA NRTL Factory Surveillance (29 CFR 1910.7) vs IECEx/ATEX Quality System (ISO/IEC 80079-34)</b>  <i>Onasis Greene</i>  Session Chair: Paul Kelly & Jerilyn Merrill	<b>Open Panel</b>  <i>Ted Dorenkamp</i> <i>Arun Kapoor</i>	<b>Flame Detection Technology Overview &amp; Certification Requirement</b>  <i>Chaitanya Katekar</i>  Session Chair: <i>Purab Mecwan</i>
5:50 PM – 6:00 PM	Transition/Networking			
6:00 PM – 7:00 PM	Technical committee for compliance 101/201		Chapter meeting	

## THURSDAY, SEPTEMBER 22, 2022

8:00 AM - 8:50 AM	Speaker Breakfast – Brickstones			
8:50 AM - 9:00 AM	Transition/Networking			
Rooms	Shutters West I	Shutters West II	Shutters East I	Shutters East II
9:00 AM - 9:50 AM	<b>Regulatory Jeopardy (Part 1 of 2)</b>  <i>Regan Arndt</i>  Session Chair: John Allen	<b>USB Breaking the 100W Barrier</b>  <i>William Susiene</i>  Session Chair: Jim Bender	<b>Mexico Regulatory Telecom and Safety Updates</b>  <i>Elizabeth Perrier</i>  Session Chair: Maja Bland	<b>Beyond the Basics, save the trauma for when it really counts</b>  <i>Lars Mellanders</i>  Session Chair: Bansil Patel
9:50 AM - 10:00 AM	Transition/Networking			
10:00 AM - 10:50 AM	<b>Regulatory Jeopardy (Part 2 of 2)</b>  <i>Regan Arndt</i>  Session Chair: John Allen	<b>Datacenter Liquid Cooling Revolution</b>  <i>William Susiene</i>  Session Chair: Jim Bender	<b>China GB/T 9254.1 CCC Standard Update</b>  <i>Thomas K. Ha</i>  Session Chair: Maja Bland	<b>An Update of the Very Latest for Global Market Access</b>  <i>Lars Mellanders</i>  Session Chair: Bansil Patel
10:50 AM – 11:00 AM	Transition/Networking			
11:00 AM - 11:50 AM	<b>Cybersecurity: Definition, Importance and Scope within Product regulatory Compliance</b>  <i>Anoop Tewari</i>  Session Chair: Jim Bacher	<b>Calibrating HV Systems Safely</b>  <i>Glen W. Broderick</i>  Session Chair: Jim Bender	<b>RoHS Directive – Quo Vadis?</b>  <i>Eva S. Hink-Lemke</i>  Session Chair: Maja Bland	<b>Reduced-Order Modeling of Pennes' Bioheat Equation for Thermal Dose Analysis</b>  <i>Francesco Colella &amp; Harry Alexander Watson</i>  Session Chair: Bansil Patel
11:50 AM – 12:00 PM	Transition/Networking			
12:00 PM – 1:20 PM	Lunch and Networking – Great Room V, VI, VII, VIII			
1:20 PM – 1:30 PM	Transition/Networking			

Rooms	Shutters West I	Shutters West II	Shutters East I	Shutters East II
1:30 PM – 2:20 PM	<b>Cyber Security for IoT, are you ready for market access to the EU after August 1<sup>st</sup>, 2024?</b>  <i>Lars Mellanders</i>  Session Chair: Jim Bacher	<b>You Are the People You Surround Yourself With: The Journey of Sustainability Reporting and Supply Chain Readiness</b>  <i>Jamie Wallish</i>  Session Chair: Grant Schmidbauer	<b>Organizing and Managing Compliance Data</b>  <i>Tom Tidwell</i>  Session Chair: Maja Bland	
2:20 PM – 2:30 PM	Transition/Networking			
2:30 PM - 3:20 PM	<b>Cyber Security for Radio Equipment in the EU and Beyond</b>  <i>Mark Briggs</i>  Session Chair: Jim Bacher	<b>UKCA Compliance for the UK Market</b>  <i>Monrad Monsen</i>  Session Chair: Grant Schmidbauer	<b>Certification Documentation Management: Critical Must Have's for Success!</b>  <i>Brunno P Covolan</i>  Session Chair: Maja Bland	
3:20 PM – 3:30 PM	Transition/Networking			
3:30 PM - 4:10 PM	<b>Magnetic Resonance (MR) Safety Testing for Active and Passive Medical Devices</b>  <i>Ji Chen and Dr Kaula</i>  Session Chair: Jim Bacher	<b>India Mandatory Testing &amp; Certification of Telecommunication Equipment (MTCTE)</b>  <i>Monrad Monsen and Grant Schmidbauer</i>  Session Chair: Grant Schmidbauer	<b>An Overview of the Latin American Regulatory Landscape</b>  <i>Tom Tidwell</i>  Session Chair: Maja Bland	
4:10 PM - 4:30 PM	Transition/Networking			
4:30 PM – 5:00 PM	Closing Session, Feedback, Prize Raffle and Wrap-Up			

## TECHNICAL PROGRAM

TUESDAY, SEPTEMBER 20, 2022

**Time:** 9:00 – 9:50AM

**Room:** Great Room V, VI, VII, VIII

### **Ethics in Engineering – Making the Right Choices**

*Jim Bender (Intertek)*

**Abstract:** This audience interactive engagement provides a lively and stimulating real-life overview highlighting regulatory compliance challenges often associated with time critical high technology product releases. The 100% fact-based reenactment pulls in audience participation focusing on engineering and management obligations and “gut checks” often encountered with potential ethical vs. legal conflicts associated with new product development, manufacturing and market introduction. The presentation and ensuing discussions will cover specific legal vs. ethical influencing cornerstones, identification and leverage of the “newspaper test”, the importance of protecting a company’s reputation and the influencing roles and obligations for product regulatory/safety professionals based on a real-life example. What makes this presentation unique are the “what would you do/what-if” scenarios associated with regulatory compliance challenges impacting critical product release expectations.

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**Time:** 10:00 - 10:50 AM

**Room:** Shutters West I & II

### **Electric Shock Measurement**

*Richard Nute (Consultant)*

**Abstract:** Electric shock is due to current through the body. Body current is due to voltage across the body resistance. However, the body resistance is a function of the applied voltage. At low voltages, the body resistance is high, and the resulting body current is low. At high voltages, the body resistance is low with high body current. This presentation shows that the skin provides the high resistance, but breaks down at a “high” voltage. Measurement of electric shock requires first a voltage measurement. If the voltage is high enough to break down the skin resistance, then body current must be measured.

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**Time:** 10:00 - 10:50 AM

**Room:** Great Room I, II, III

### **Laboratory Safety and Ethics**

*Kacy Stanfill (Intertek)*

**Abstract:** Laboratory Safety is often looked at as a check-list item to only satisfy a regulatory compliance mandate, often failing to consider important ethical obligations to maintain a safety environment. This paper provides an overview of laboratory safety practices presented from a compliance perspective, tying each consideration beyond the “regulatory obligation”. It will focus on why such practices and obligations are important to satisfy ethical cornerstones to preserve employee safety in the laboratory featured through third party safety certification laboratory examples.

**Time:** 10:00 - 10:50 AM

**Room:** Great Room IV

### **India Certification Overview (BIS – Safety, WPC – Wireless and TEC – Telecom)**

*Kapil Sapru (G&M Compliance)*

*Thomas K. Ha (G&M Compliance)*

**Abstract:** We would like to present in brief the India certification process, focussing on Safety, Wireless, and Telecom. We would also like to present different products which are mandatory in these certifications. One of the case studies presented in this deck will give a clear idea, of how the certification process works.

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**Time:** 10:00 - 10:50 AM

**Room:** Shutters East I & II

### **Lithium Battery Field Failures – Should you engage expert assistance?**

*John Copeland (Energy Assurance)*

**Abstract:** As the demand for lithium batteries continues to increase, an influx of lower-tier providers has entered the market to meet that demand. Sadly, this has led to a greater chance of thermal runaway events occurring in the field resulting in negative impacts to brand image, legal actions, property damage, and sometimes personal injury. Should this happen to your company, do you have the expertise to go it alone or should you bring in independent experts in the field? This presentation will cover important aspects to be considered when making that decision and the associated risks, expectations when working with a third-party provider, and an overview of the battery failure analysis process. We will also briefly touch on proactive steps that can be taken to better manage risk exposure before there is a field incident.

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**Time:** 11:00 – 11:50 AM

**Room:** Shutters West I & II

### **UL 60335-1 Ed. 6 – Standard for Safety of Household and Similar Electrical Appliances, Part 1**

*Luiz Claudio Bonilla de Araujo (Whirlpool Corporation)*

**Abstract:** On October 31, 2016, UL and CSA published this harmonized standard for general household safety requirements and similar appliances. It is the sixth edition of UL 60335-1. It is based on publication IEC 60335-1, Edition 5.1 (Edition 5:2010 including corrigendum 1:2010, corrigendum 2:2011, and amendment 1:2013), issued April 2014. The objective of this presentation is discuss the technical changes between the 6th and the 5.1 editions, with a focus on those clauses with greater impact on appliances already certified / listed per the previous standard.

**Time:** 11:00 - 11:50 AM

**Room:** Great Room I, II, III

### **Product Safety – The Importance and Impact of Ethical Compliance Practices**

*Jim Bender (Intertek)*

*Brunno Covolan (Intertek Testing Services)*

**Abstract:** Product safety is a key care-about in a product's cradle-to-grave life cycle, starting from conceptual definition and design, testing, manufacturing and ultimate disposal. This paper will focus on the importance of product safety compliance practices that cannot be taken for granted when facing production release pressures that challenge not-so-obvious ethical boundaries. Examples will cover each major part of a product cycle including conceptual definition, design, testing, supporting marketing material (promotional representation that may not align with the product's certification compliance assessment boundaries including datasheet, whitepapers, manufacturing and disposal.

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**Time:** 11:00 - 11:50 AM

**Room:** Great Room IV

### **Homologation Tricks and Tips**

*Cyril Mecwan (OnRule)*

*Thomas L. Killam (OnRule)*

**Time:** 11:00 - 11:50 AM

**Room:** Shutters East I & II

### **Codes and Standards for Stationary Energy Storage Installations - NFPA 855, UL 9540, and UL 9540A**

*Michael R. Becker (CSA Group)*

**Abstract:** Energy storage system manufacturers today must meet a number of regulations before they can successfully deploy and fully commission their systems. One of the primary codes that impact them is the NFPA 855 Standard for Installation of Stationary Energy Storage Systems. NFPA 855 references many product and installation codes that make it complex. This presentation highlights the clauses of NFPA 855 and the primary standards for Energy Storage Systems - UL 9540 (Energy Storage Systems and Equipment) and UL 9540A (Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems) that have an impact and can present challenges for energy storage system manufacturers. Armed with this knowledge, energy storage system manufacturers will be able to address applicable testing and certification requirements early in the process, streamlining deployments and commissioning.

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**Time:** 1:30 - 2:20 PM

**Room:** Shutters West I & II

### **PSES Tutorial Part 1: Compliance 101**

*Ken Kapur (Thermo Fisher Scientific)*

**Abstract:** The goal of most companies is not to only design products to be safe, perform according to customer demands, and to meet regulatory requirements, it is to sell those products globally. There are a myriad of technical requirement that must also be considered to facilitate the sale of the product. The plan for this tutorial is to delve into some of the "other technical requirements" that products must comply with, including product safety requirements (ie, concepts such as fire, shock, mechanical, temperature, and radiation); and then once your products are compliant, we will discuss the commercialization of the product through obtaining the many country approvals that are needed in order to legally sell the product around the world. This tutorial should be attended by product realization managers, design engineers, test technicians, product regulatory personnel, project managers, marketing personnel, and others interested in learning more about product safety and global market access requirements.

- » The intent of this presentation is to provide a basic knowledge of Product Safety and Regulatory Compliance for products sold worldwide.
- » The presentation covers the requirements for those involved in new and existing products and those who need to address global safety requirements.
- » This training will provide the fundamental guidance for product safety which can support geographic sales for import and export around the world.

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**Time:** 1:30 - 2:20 PM

**Room:** Great Room I, II, III

### **Recognized Components and Ethical Compliance Obligations – Understanding and Fulfilling Conditions of Acceptability**

*Jim Bender (Intertek)*

**Abstract:** Third party safety certifications play a key role in product development and manufacturing. The use of third-party certified components and subassemblies often referred to as "Recognized Components" can greatly simplify end-product certification processes and pending success. This is achieved by minimizing or eliminating duplicated end-product construction and testing efforts of the end-product's internal components and subassemblies already performed as a part of the Recognized Component's certification. This publication provides an overview regarding purpose and importance of "Conditions of Acceptability" (COA) associated with all Recognized Components, along with an interesting focus on ethical implications to meet those obligations.

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**Time:** 1:30 – 2:20 PM

**Room:** Great Room IV

### **Global Impact of Adding Wireless Technology to Products**

*Theresa Glenna (TUV SUD)*

**Abstract:** Adding wireless technology to a product adds a layer of certification requirements which can be challenging to navigate. Learn about different methods of integrating wireless modules and how you can leverage a pre-approved module. Take home some strategies to refine your compliance plan and ways to make informed decisions to save costs and manage your time to market.

**Time:** 1:30 - 2:20 PM

**Room:** Shutters East I & II

### **Demystifying Batteries From Cell to End Product**

Rich Byczek (Intertek Testing Services NA, Inc)

**Abstract:** IEC 62133-2 has become the global norm for small format Lithium Ion Cells and batteries, but the application of this standard can still lead to confusion when validating compliance of Battery Powered Devices. This presentation clarifies the scope of IEC 62133-2 and it's globally harmonized counterparts, the status of legacy IEC and UL standards, and the relationship to Transportation Testing Regulations. Various certification schemes are addressed, as well as selecting proper alternate or additional battery compliance test requirements. Cell, Component Battery, Integrated battery and Standalone Battery Pack scenarios are explored to better understand the relationships between component and end product requirements.

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**Time:** 2:30 - 3:20 PM

**Room:** Shutters West I & II

### **PSES Tutorial Part 2: Compliance 201**

John Allen (*Product Safety Consulting, Inc.*)

**Abstract:** The goal of most companies is not to only design products to be safe, perform according to customer demands, and to meet regulatory requirements, it is to sell those products globally. There are a myriad of technical requirement that must also be considered to facilitate the sale of the product. The plan for this tutorial is to delve into some of the "other technical requirements" that products must comply with, including product safety requirements (ie, concepts such as fire, shock, mechanical, temperature, and radiation); and then once your products are compliant, we will discuss the commercialization of the product through obtaining the many country approvals that are needed in order to legally sell the product around the world. This tutorial should be attended by product realization managers, design engineers, test technicians, product regulatory personnel, project managers, marketing personnel, and others interested in learning more about product safety and global market access requirements.

- This presentation is a continuation of presentation #1 (covering Product Safety and Regulatory Compliance for products sold worldwide), looking into the requirements in more detail.
  - We will review requirements in product safety standards and the impact to new designs.
  - Understanding the level of product safety testing in accordance with safety standards will also be covered.
  - We will discuss product safety risks (Electrical, Mechanical, Lasers, Radiation, etc.) and methods to mitigate risk and ensure compliance.
  - 'Design For Compliance' techniques will be discussed as they pertain to complying with global product safety standards (UL, CSA, IEC).
  - Maintaining compliance through product modifications will be included.
  - Challenges and best practices will be shared that will help product designers get a new product to market quickly and efficiently.
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**Time:** 2:30 - 3:20 PM

**Room:** Great Room I, II, III

### **Regulations and Concerns for Wearable Devices – Understanding on the Possible Safety and Performance Issues**

*Pamela Gwynn (UL LLC)*

**Abstract:** “Wearable” is a buzzword recently pops on all kinds of media. A “wearable” device seems to be more attractive and creates a lifestyle fashion. People are also talking about “Wearable Technologies”, “Wearable Computing”, “Wearable Devices”, yet what exactly do they mean? There are two emerging markets: Non-clinical and healthcare – Driven by the awareness of personal wellness and the growth of aging population in highly developed countries, Gaming and entertainment – Supported by a special interest group. These new applications will impact the existing regulatory requirements and attract the attention of government agency and Certification bodies.

In this presentation, we will discuss the following topics

- » Common understanding of the term “Wearable Device”
  - » Landscape of Wearable devices market and application
  - » Challenges and Concerns on Designing Wearables
  - » Regulatory, Industrial and Performance Specifications
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**Time:** 2:30 – 3:20 PM

**Room:** Great Room IV

### **Mexico – Market Access and Compliance Changes 2022**

*Maja Bland (UL)*

**Abstract:** Thinking about exporting into Mexico? Are you already selling into the market and wondering how the changes recently communicated for electronics and wireless products have affected your existing compliance records?

In this presentation we will cover the following in our Agenda:

What are the Compliance Requirements (Safety, Wireless, Energy Efficiency)

What is Mexico HS code (harmonized tariff code) - and how this code drives regulatory requirements?

What's new: Regulatory Updates focused on:

IFT revision to PEC June 27th 2022 enforcement.

NOM-019-SE-2021 status of enforcement impact on DGN equivalency agreement process.

Please join us in further unravelling the mysteries of Market Access compliance in Mexico.

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**Time:** 2:30- 3:20 PM

**Room:** Shutters East I & II

### **UN 38.3 Updates and Beyond**

*Rich Byczek (Intertek Testing Services NA, Inc)*

**Abstract:** This presentation provides the latest updates and changes to the Lithium Battery transportation testing regime, per UN 38.3 Common misconceptions, Frequently Asked Questions, and Interpretations are given for multiple scenarios. Additionally, this presentation addresses the non-testing updates and interpretations including the UN 38.3 Test Summary Sheet, and updated shipping and labeling regulation changes.

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**Time:** 4:00 - 4:50 PM

**Room:** Shutters West I & II

### **PSES Tutorial Part 3: Global Market Access**

*Grant Schmidbauer (Nemko North America, Inc)*

**Abstract:** The goal of most companies is not only design products to be safe, perform according to customer demands, and to meet regulatory requirements, it is to sell those products globally. There are a myriad of technical requirement that must also be considered to facilitate the sale of the product. The plan for this tutorial is to delve into some of the "other technical requirements" that products must comply with, including product safety requirements (ie, concepts such as fire, shock, mechanical, temperature, and radiation); and then once your products are compliant, we will discuss the commercialization of the product through obtaining the many country approvals that are needed in order to legally sell the product around the world. This tutorial should be attended by product realization managers, design engineers, test technicians, product regulatory personnel, project managers, marketing personnel, and others interested in learning more about product safety and global market access requirements.

» Once your product complies with (all) the regulatory requirements for the different countries you plan to market the product, you must then obtain the necessary country approvals.

» This presentation will provide an overview of global market access requirements, and then give more specific requirements for North America, European Union, and some of the other Asian and South American countries.

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**Time:** 4:00 - 4:50 PM

**Room:** Great Room I, II, III

### **Medical Device IEC 60601-1 Compliance**

*Liam Lam (Nemko)*

**Abstract:** The presentation will present the administration changes, technical changes, and gap analysis from IEC 60601-1:2005 + AMD1:2012 to IEC 60601-1:2005 +AMD1:2012 + AMD2:2020.

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**Time:** 4:00 - 4:50 PM

**Room:** Great Room IV

### **Improving Safety in Europe – Detecting Counterfeit Certificates from FFP2 Masks: A Text-Mining Approach**

*Franz Wieck (University of Wuppertal)*

*Ninja vom Stein (University of Wuppertal)*

*Manuel Löwer (University of Wuppertal)*

**Abstract:** The large volume of new products poses major challenges for market surveillance authorities and accredited testing bodies. This lack of verification leads to defective products being sold. For personal protective equipment, e.g., FFP2 masks, this leads to an increased safety risk. To reduce this risk, this paper proposes a solution to identify non-compliant products by analyzing the required certificates, especially the type examination reports. To enable automated evaluation, this paper presents a textmining approach for verification. It consists of three steps: i) requirements identification of certificates, ii) data extraction and analysis and iii) evaluation of the results using a decision tree classifier. Finally, the algorithm is validated using a case study of several counterfeit FFP2 type examination reports. The result shows that the text-mining approach is capable of distinguishing fakes from real certificates. The ability to analyze certificates in an automated way will completely change the way market surveillance authorities and accredited verification bodies check documents

**Time:** 4:00 - 4:50 PM

**Room:** Shutters East I & II

### **New FCC RF Exposure Compliance Rules**

*Vina Kerai (Nemko North America, Inc.)*

**Abstract:** The FCC has published its latest revisions to the radiofrequency exposure evaluation rules and guidance in the Code of Federal Regulations Title 47 and KDB 447498. Some rules are already in effect with all new rules being mandatory from June 30, 2022. The new rules mark a significant update and change to the criteria and methodology for assessing unintentional and intentionally radiating devices. As a result of the new rules, certain devices that previously were exempt from specific absorption rate (SAR) evaluation are now subject to SAR evaluation, while other devices which were wholly exempt from RF Exposure exhibit requirements are now within the scope of the FCC's RF exposure requirements. Several other changes are also made to the rules. This presentation will start to prepare you for the transition to the new RF Exposure requirements. It will provide a basic understanding of the implications of the new rules for your devices and their impact on your work.

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**Time:** 5:00 - 5:50 PM

**Room:** Shutters West I & II

### **PSES Tutorial: Open Panel Questions**

*Grant Schmidbauer (Nemko North America, Inc)*

*Ken Kapur (Thermo Fisher Scientific)*

*John Allen (Product Safety Consulting, Inc.)*

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**Time:** 5:00 - 5:50 PM

**Room:** Great Room I, II, III

### **Product Safety Standards and Integration of Sensors and Therapies**

*Todd R. Konieczny (Intertek Testing Services NA, Inc.)*

**Abstract:** Medical products are changing from the typical bench top models everyone is familiar with in doctors offices and hospitals. The devices are becoming smaller and wearable and used in everyday in the real world. This makes complying with the standards more challenging and complex. This presentation was created to help breakdown some of the barriers with new technologies and the standards that have not caught up yet.

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**Time:** 5:00 - 5:50 PM

**Room:** Great Room IV

### **Forensic Analysis of Trucking and Equipment Accidents and Failures**

*Patrick D. Riedlinger (ESI)*

**Abstract:** Heavy vehicles and Farm/Industrial equipment often have unique and spectacular results when accidents occur, from human failures or direct machine failures. Patrick Riedlinger, PE, accident Reconstructionist will show case studies and methods of analysis in heavy vehicle accidents.

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**Time:** 5:00 - 5:50 PM

**Room:** Shutters East I & II

**5G Wireless Technology and Developments**

*Tom Tidwell (Nemko)*

**Abstract:** An overview of 5th Generation wireless network innovation and how wireless systems such as WIFI and IoT are part of the evolution of wireless mobile networks.

WEDNESDAY, SEPTEMBER 21, 2022

**Time:** 9:00 - 9:50 AM**Room:** Great Room V, VI, VII, VIII**UVC and Cooper in Disinfection – The Good, the Bad and the Ugly***Steve Reinecke (Proximity Systems)*

**Abstract:** In our daily lives, we encounter multiple surfaces that have been previously touched by someone else. High-touch surfaces are found everywhere. We have self-checkout at the grocery store. We have options to order our meals on a touchscreen before getting in line. There is the pin pad on the point-of-sale device at 1000's of retail outlets. We hold the handrail on a bus and train. When traveling, we are encouraged to "check in" at a kiosk prior to engaging a live person. All these surfaces have recently been touched by someone else and are not routinely cleaned, and if they have been, there is a high likelihood that the instructions on the liquid cleaning products they are using were not followed. The pandemic has brought to light many new technologies and engineering innovations. We will discuss how copper and UV disinfection technologies are increasingly providing options for the disinfection of surfaces and indoor environments. This presentation will educate participants on what UVC is and how it works to disinfect surfaces, air, and water. We will compare liquid disinfection products and see how they work. We will discuss how copper is a naturally antimicrobial element that is recognized by the EPA. We will discuss what to look for when purchasing a UVC disinfection device. Topics will revolve around understanding claims of efficacy, safety, and regulatory restrictions. We will discuss questions a purchaser should be prepared to ask a manufacturer of the UVC product before purchase and help purchasers understand, "If something seems too good to be true, it is probably is too good to be true". Lastly, we will give examples of false and misleading product claims and have an open discussion with all participants in the session.

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**Time:** 10:00 - 10:50 AM**Room:** Shutters West I & II**Origins and Basics of Electrical Fire and Shock Protection***Mike Sherman (Sherman PSC LLC)*

**Abstract:** The basic needs for fire and shock protection for electrical equipment emerged during a tumultuous period in the late 1880s/early 1890s. This presentation looks at that history, summarizes current best protection practices, and adds some hard-earned lessons from 30 years of electrical product safety work experience. This is suitable for those newer to the product safety field, those more experienced who are looking for a colorful recap, and those wanting a presentation they can use inside their organizations to spread awareness. This is also a good foundation for those planning to attend one of Pete Perkins' ISPCE talks on leakage current.

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**Time:** 10:00 - 10:50 AM

**Room:** Great Room I, II, III

### **Global Conformity Assessment of Equipment for Hazardous (Classified) Locations**

*Bill Fiske (Intertek)*

**Abstract:** The four pillars of product safety are standards, conformity assessment, installation codes, and code enforcement. If any one of them fails, the entire system fails, resulting in a dangerous condition. In explosive atmospheres, the consequences of a failure in the safety system are much greater than the consequences of failure in normal industrial occupancies. Due to the grave consequences of accidents in hazardous (classified) locations, there are more rigorous requirements in the equipment standards, different approaches to conformity assessment, and more rigorous installation requirements. This session mainly focuses on the conformity assessment aspect of the system. As the topic of this session is global conformity assessment, the International Electrotechnical Commission System for Certification to Standards Relating to Equipment for Use in Explosive Atmospheres (IECEx System) will be the principal subject of the session. IECEx is the only global conformity assessment system related to hazardous (classified) locations. There are also regional hazardous locations conformity assessment schemes of some significance. A few of these will be described, including their similarities to and differences from IECEx.

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**Time:** 10:00 - 10:50 AM

**Room:** Great Room IV

### **False or Incorrect Markings and Test Reports of EEE Parts**

*Steli Loznen (IEEE – Product Safety Engineering Society – Vice – President for T)*

**Abstract:** In this presentation will be reviewed the means that play an especially critical role in the electronics sector, where one fake marking, component or approval could impact a product's operations and the safety of its users. Product counterfeiting is a well-known problem, one that has been with us for a very long time. Counterfeit products are not just a passing problem, but are part of a major global industry. It is a fact that false and incorrect marking and documentation issues in the electrical, electronic and electromechanical (EEE) products marketed can be dangerous and unsafe due to use of second choice of raw material, poor assembly, lack of third-party testing and certification, etc. EEE counterfeits affect every segment of the market, including consumer goods, networking and communications, medical, automotive, and aerospace and defense. We try to help companies and consumers to defend themselves in the ever-expanding market of counterfeit goods and focuses on the means used for detecting and avoiding counterfeit EEE parts that have been remarked or recycled, a review of the applicable standards used for detecting these parts and methods for identifying incorrect test reports, certification or approvals.

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**Time:** 10:00 - 10:50 AM

**Room:** Shutters East I & II

### **Taking a UVC Disinfection Product through Regulatory Compliance**

*Steve Reinecke (Proximity Systems)*

**Abstract:** How do you take an emerging technology through the regulatory process? In this session, Steve Reinecke, Chief Scientist and Regulatory Compliance Officer for Proximity Systems / UV-CLEAN, will share his experience of working with UL to bring the first-ever UVC surface disinfection device through the safety certification, UL 962. Steve will discuss the pitfalls to avoid when dealing with a technology that does not have a clear regulatory standard associated with it. He will also share the challenges of the initial design review and following through with testing. Steve, through his experience, will help you understand how important it is to read and reread all documentation from your NRTL. Steve will also talk about the following standards and how they each posed unique challenges:

UL 991: Standard for Tests for Safety-Related Controls Employing Solid-State Devices

UL 1998: Standard for Software in Programmable Components

IEC/UL 60730-1 Annex H: Standard for Automatic and Electrical Controls for Household and Similar Use

IEC 6247: Photobiological safety of lamps and lamp systems

UL 8802: Investigation for UV Germicidal Equipment and Systems in non-residential locations

UL 8803: Risks of portable germicidal equipment used in homes and other similar areas

ANSI 969 / UL 969 - Standard for labels and markings

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**Time:** 1:30 – 2:20 PM

**Room:** Shutters West I & II

### **The Importance of Understanding Critical Differences between Recognized Components and Listed Products**

*Maria N. Martinez (Intertek)*

**Abstract:** A common question many new safety compliance evaluators encounter early in their career lies within knowing how to effectively understand elements of conformity for safety critical components and products. This begs the question regarding why some safety critical components are recognized while others are listed. This paper will focus on identifying the differences between a recognized component and a listed product and why such differences play a critical role in end-product safety certifications.

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**Time:** 1:30 - 2:20 PM

**Room:** Great Room I, II, III

**Why Influence Global HazLoc Standards?**

*Scott Kiddle (ABB)*

**Abstract:** Knowledge is power when participating in standards development. This presentation will cover the movement in harmonization of standards, and why it is important to participate in technical committees. Although the principles shared in the presentation can apply in the process of standards development, this presentation focuses specifically on hazardous location (HazLoc) standards development. Understanding and getting involved in the process for the adoption and maintenance of conformity standards provides the opportunity to help influence the development of these standards for business and safety benefit. Manufacturers, certifiers, users and inspectors/regulators of HazLoc equipment should take notice of the fact that standards have a

direct impact on their bottom line! Global harmonization of product standards is a win-win for everyone; however, it sometimes becomes complex when challenged with compromise or adoption for national differences to satisfy local requirements. Intimate knowledge on the state-of-the-art standards assures longevity of the business at hand.

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**Time:** 1:30 - 2:20 PM

**Room:** Great Room IV

### **Circular Economy and Sustainability – Upcoming Legal Challenges for Product Compliance on the European Market**

*Sonja Leibold (Noerr) Arun Kapoor (Noerr)*

**Abstract:** In the European legal framework, Product Compliance goes beyond product safety already for quite some time now. As a new drive, more and more complex rules on environmental product compliance apply to different product categories. In the context of a comprehensive strategy on significant limitation of climate change, the European Commission now launched a strategy and first drafts of legislation which go even further and oblige the manufacturer throughout the product life circle. Starting with the mandatory use of recycling materials, covering the durability of products and stretching to disposal characteristics and end-of-lifecycle obligations. This new quantity and quality of legal obligations will force manufacturers placing their products onto the European market to adapt their product compliance management. This session will give a systematic outline on the upcoming challenges and first thoughts how to address them from a manufacturer's perspective"

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**Time:** 1:30 – 2:20 PM

**Room:** Shutters East I & II

### **The Role of Technology in the Management of Product Regulatory Compliance**

*Cyril Mecwan (Noerr LLP, Germany)*

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**Time:** 2:30 - 3:20 PM

**Room:** Shutters West I & II

### **On Product Warnings: ANSI Z535.4 and ISO 3864-2**

*Erin Earley (Clarion Safety Systems)*

*Angela Lambert (Clarion Safety Systems)*

**Abstract:** Everyday, engineers and manufacturers who have responsibility over product safety and compliance face challenges related to ever-changing global codes, standards, and regulations. The U.S. ANSI Z535 family of consensus standards is commonly used by manufacturers and workplaces – along with its global counterpart, ISO 3864-2 – as a main guideline for following best practices and creating consistency in their safety warnings and instructions. This presentation will explain the significance of the ANSI Z535 and ISO 3864-2 standards, as well as explore the latest updates and what they mean for today's safety and risk professionals. Of special significance is that ANSI Z535 is being republished this year, in 2022, marking the first time that this family of size standards have changed in over a decade. Additionally, development of a new sub-standard, ANSI Z535.7 is underway, focusing on trends in digitalizing and automation. This session will be presented by Angela Lambert, who has over a decade of experience in product safety and liability issues. Lambert is the head of standards compliance at Clarion Safety Systems, and serves in leadership roles in ANSI and ISO committees for product safety, workplace safety, and visual safety communication. She is chair of ANSI Z535.1 Safety Colors, a member of ANSI Z535 Committee, the U.S. TAG to ISO/TC 145 and of the U.S. TAG to ISO/TC 283, and is the liaison representative from ISO/TC 145 to ISO/TC 283.

**Time:** 2:30 - 3:20 PM

**Room:** Great Room I, II, III

### **Hydrogen Technologies for Refueling Station Facilities**

*Robert A. Deadman (UL LLC)*

*Paul T. Kelly (UL LLC)*

**Abstract:** There are estimates that ten million metric tons of hydrogen are currently produced in the United States every year. Applications for hydrogen include oil refining, ammonia industries, metals refining, liquid fuels (e.g., biofuels, synfuels), heat generation, energy storage, and transportation. This presentation will be about hydrogen technologies for refueling station facilities.

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**Time:** 2:30 - 3:20 PM

**Room:** Great Room IV

### **Responding to Injury Reports – Confronting Regulatory and Legal Risk**

*Ted Dorenkamp (Bowman and Brooke LLP)*

*Arun Kapoor (Noerr)*

**Abstract:** A company that manufactures and distributes a consumer-facing product for the EC and US markets received reports of several injuries that have occurred while using the product and has also received a couple of claim letters. Presenters examine how a company might respond to these reports and claims to efficiently address and minimize regulatory and legal risk in both the European and U.S. perspective.

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**Time:** 2:30 - 3:20 PM

**Room:** Shutters East I & II

### **Incident Power Density of Electrically-Large Planar Phased Arrays Communicating with Non-Geostationary Satellites**

*David R. Novotny (Space Exploration Technologies Corporation)*

*Nicholas Christensen (Space Exploration Technologies Corporation)*

*Shanay Kothari (Space Exploration Technologies Corporation)*

*Leszek Langiewicz (Space Exploration Technologies Corporation)*

**Abstract:** The proliferation of planar phased array antennas that communicate with Low Earth Orbit (LEO) satellite constellations has unveiled potential measurement differences between fixed beam and scanning phased array antennas for assessing the time-averaged power density. Communicating with LEO satellites requires constant beam movement so exposure changes with time. Additionally, communications arrays, following Satellite Earth Stations and Systems (SES) regulations, are required to not transmit unless they are receiving enabling commands from a satellite – so blockages that stop communication and transmissions further reduce time-averaged power flux. These complex RF pattern, pointing and operational modes leads to a proposed introduction of a spatial duty cycle that weighs time-averaged power density by the proportion of time the beam is on a target area.

This paper presents a method to characterize the time-average power density and exposure from electrically large-phased arrays used for commercial LEO satellite communications in the near- and far-field.

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**Time:** 4:00 - 4:50 PM

**Room:** Shutters West I & II

### **Component Interchangeability for Compliance – Considerations, Challenges, and Improvements**

*Chintan Trivedi (Intertek Testing Services NA, Inc.)*

**Abstract:** The need for controlling critical safety components and their supporting documentation helps assure an effective safety compliance evaluation. All too often however, design and manufacturing constraints are perceived as barriers. Such barriers, regardless if real or perceived, impact development and manufacturing flexibilities when product life cycles are rapidly evolving along with underlying challenges of the supply chain environment. A review of the International Electrotechnical Commission (IEC) System of Conformity Assessment Schemes for Electrotechnical Equipment and Components (ECE) component interchangeability guide is presented in this publication. Intent is to explore how to effectively leverage critical safety component parameters and context along with increasing consistency. Examples of benefits derived from both consistent and structured methodologies as well as inherent limitations are presented in this publication, capturing entire product assembly or limited subassembly levels.

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**Time:** 4:00 - 4:50 PM

**Room:** Great Room I, II, III

### **Designing Industrial Control Panels for Use in Hazardous (Classified) Locations**

*Aaron Roberts (Montrose Compliance Services, Inc., USA)*

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**Time:** 4:00 - 4:50 PM

**Room:** Great Room IV

### **Product Safety Compliance – Current Legal Developments in Europe**

*Arun Kapoor (Noerr)*

**Abstract:** The new EU Market Surveillance Regulation represents a turning point in European product safety law. For the first time, it harmonizes the official enforcement of product law in Europe, expands the powers of the authorities and tightens the conditions for e-commerce. And the next challenges are already on the horizon. Arun Kapoor gives an overview on the current status of the upcoming new Regulations on General Product Safety, Machinery and Toys.

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**Time:** 5:00 - 5:50 PM

**Room:** Shutters West I & II

### **Risk Assessment Basics for EMC, LVD, and RED Directives**

*Patricia Knudsen (Teradata Corporation)*

**Abstract:** An introduction to risk assessment basics: how to get started, who should give input, and what aspects should be covered.

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**Time:** 5:00 - 5:50 PM

**Room:** Great Room I, II, III

**HazLoc Equipment Manufacturers Audit Challenges, OSHA NRTL Factory Surveillance (29 CFR 1910.7) vs IECEx/ATEX Quality System (ISO/IEC 80079-34)**

*Onasis Greene (Intel Corp)*

**Abstract:** OSHA requirements for NRTL factory surveillance of hazardous location equipment is a minimum of four (4) factory surveillance visits per year. This requirement does not consider a reduction in the minimum number of visits based on the robustness of the manufacturer's quality system or incidents history. The NRTL surveillance requirement is not checklist based, compared to ISO/IEC 80079-34, leading to the potential for inconsistent practice across NRTLs. This presentation will touch on the pros and cons of the OSHA NRTL factory surveillance program to answer the question, "Can industry influence OSHA to lean towards an approach based on, or more aligned with, the IECEx and ATEX quality system to promote consistency while maintaining safety?".

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**Time:** 5:00 - 5:50 PM

**Room:** Great Room IV

**Open Panel**

*Ted Dorenkamp (Bowman and Brooke LLP)*

*Arun Kapoor (Noerr)*

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**Time:** 5:00 - 5:50 PM

**Room:** Shutters East I & II

**Flame Detection Technology Overview & Certification Requirement**

*Chaitanya Katekar (Intertek)*

**Abstract:** Statistical data reflects how the industry has been struggling with engulfing fires arising from undesirable events. From 2011 to 2015, an estimated 37,910 fires in industrial and manufacturing properties were collectively reported to United States fire departments per year, which led to approximately \$1.2 billion in property damage<sup>1</sup> and countless (and needless) losses of life. Many years of engineering research have gone into the study of flame characteristics, with the sole intention of early detection of the flame and consequently providing effective alerting means to act, stop, or mitigate flame propagation.

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THURSDAY, SEPTEMBER 22, 2022

**Time:** 9:00 - 9:50 AM**Room:** Shutters West I**Regulatory Jeopardy (Part 1 of 2)***Regan Arndt (Thermo Fisher Scientific)*

**Abstract:** CE is not a certification! Yes, it's true. You heard it correctly. Now you are thinking to yourself..... "What"?!..... Since when!? Answer: It always has been that way since day one. Have you ever been in a situation where the certification agency says that they do not accept a CE marked component for your product's NRTL approval? And why do I not need the RoHS mark on my device anymore? Are manufacturers required to have their products certified by an NRTL or is the employer? Is Field labeling by an NRTL the same as NRTL certification? Register for this fun and interactive 'Jeopardy' themed presentation that demystifies the many misnomers, myths, and misunderstandings that can cause mistakes, mishaps and mayhem in the complex world of Regulatory Compliance. This presentation will also provide insight on how to avoid embarrassing and costly mistakes when dealing with test labs and certification agencies leaving you feeling more confident when confronting any issue that involves Product Safety, EMC, CE marking, NRTL certification, Field evaluations and more.

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**Time:** 9:00 - 9:50 AM**Room:** Shutters West II**USB Breaking the 100W Barrier***William Susiene (Intel Corporation)*

**Abstract:** Provides an overview of latest USB Power Delivery (PD) Extended Power Range (EPR) from a safety perspective, including background on USB's historic challenges with IEC 62368-3, and the collaboration effort between USB IF, IEC TC100, and IEC TC108 to align on future standards requirements that support safety and interoperability. The presentation will also touch on the new protocol safeguards and functional safety concepts to address soft errors in communication.

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**Time:** 9:00 - 9:50 AM**Room:** Shutters East I**Mexico Regulatory Telecom and Safety Updates***Elizabeth Perrier (ORBIS Compliance, LLC)*

**Abstract:** Mexico has been implementing many regulatory changes in their Conformity Assessment framework that are hard to understand and plan for. This session will provide the clear and concise explanation of the changes and how they impact your current approval and guide you how to plan for the future. Safety Regulations will also be included in this seminar as NOM-019 is soon to be published having lasting impacts in the way the products are testing and approved today. We look forward to a dynamic discussion with attendees.

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**Time:** 9:00 - 9:50 AM

**Room:** Shutters East II

### **Beyond the Basics, Save the Trauma for when it really counts**

*Lars Mellanders (Nemko)*

**Abstract:** Critical things you need to know to be ready for a market release. Whether a limited market or global, mistakes are the start can mean serious issues that can be avoided. You think you know all needed? Come and find out, starting off right, means a much better life early.

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**Time:** 10:00 - 10:50 AM

**Room:** Shutters West I

### **Regulatory Jeopardy (Part 2 of 2)**

*Regan Arndt (Thermo Fisher Scientific)*

**Abstract:** CE is not a certification! Yes, it's true. You heard it correctly. Now you are thinking to yourself..... "What"?!..... Since when!? Answer: It always has been that way since day one. Have you ever been in a situation where the certification agency says that they do not accept a CE marked component for your product's NRTL approval? And why do I not need the RoHS mark on my device anymore? Are manufacturers required to have their products certified by an NRTL or is the employer? Is Field labeling by an NRTL the same as NRTL certification? Register for this fun and interactive 'Jeopardy' themed presentation that demystifies the many misnomers, myths, and misunderstandings that can cause mistakes, mishaps and mayhem in the complex world of Regulatory Compliance. This presentation will also provide insight on how to avoid embarrassing and costly mistakes when dealing with test labs and certification agencies leaving you feeling more confident when confronting any issue that involves Product Safety, EMC, CE marking, NRTL certification, Field evaluations and more.

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**Time:** 10:00 - 10:50 AM

**Room:** Shutters West II

### **Datacenter Liquid Cooling Revolution**

*William Susiene (Intel Corporation)*

**Abstract:** Provides an overview of different emerging liquid cooling thermal solutions for Datacenters, including some pros/cons, background on IEC 62368-1 requirements, and the collaboration between TC108 & ASHRAE to support new modular concept for IEC 62368-1, 4th Edition. The presentation will also touch on 2-phase systems and some of the challenges with greener refrigerants (e.g. A2L).

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**Time:** 10:00 - 10:50 AM

**Room:** Shutters East I

### **China GB/T 9254.1 CCC Standard Update**

*Thomas K. Ha (G&M Compliance, Inc.)*

**Abstract:** GB / T 9254.1 Standard Overview The EMC standard (GB/T 9254.1) for China CCC certification has been updated. This standard is applicable to ITE, A/V, broadcast receiving equipment, entertainment lighting control equipment and their combinations with rated AC (RMS) or DC voltage not exceeding 600V. This presentation will provide in details the changes and updates.

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**Time:** 10:00 - 10:50 AM

**Room:** Shutters East II

### **An Update of the very latest for Global Market Access**

*Lars Mellanders (Nemko)*

**Abstract:** Come and find out what are the most current changes are in the world of Global Market Access. It is impossible to know everything(!) and even if you do, it will change next week! I will be sharing what I think you need to know the most, not just an overview(!) the details that you need to know and what the best path may be for you to get there.

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**Time:** 11:00 - 11:50 AM

**Room:** Shutters West I

### **Cybersecurity: Definition, Importance and Scope within Product Regulatory Compliance**

*Anoop Tewari (OnRule)*

*Cyril Mecwan (OnRule)*

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**Time:** 11:00 – 11:50 AM

**Room:** Shutters West II

### **Calibrating HV Systems Safely**

*Glen W. Broderick (Vitretek)*

**Abstract:** Calibrating high voltage instruments and systems presents several unique challenges. They can seem rather trivial if you know about them – but can kill you if you don't. Assuming that the audience is already familiar with calibration and traceability, this presentation focuses on the specific issues of working with high voltage, the factors that affect accuracy, and how to make measurements safely. Topics discussed include types of HV instruments; instrument errors, probe errors, sources and control of these errors; and understanding HV specs. Finally, it covers the basics of setting up a workstation in ways that can improve the safety of those in the area.

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**Time:** 11:00 - 11:50 AM

**Room:** Shutters East I

### **RoHS Directive – Qup Vadis?**

*Eva S. Hink-Lemke (iPoint Systems GmbH)*

**Abstract:** In 2011, the RoHS directive 2011/65/EU was published as the recast of the first RoHS directive 2002/95/EC. The new directive, being a “single-market” directive is ruled under CE marking and established one of the first connections between technical requirements and environmental aspects. It has put more responsibility on industry by establishing new rules and processes for exemptions. It demands a process for regular review of the restricted substances list. This ensures that the requirements of the directive will be adapted to the technical progress from time to time. In 2022, we are still waiting for many news and decisions for the future direction of RoHS: - 9 exemptions for commonly used exemptions from Annex III (e.g. lead in alloys) have been reviewed since 2020 as they were about to expire in 2021. The recommendation has been published in early 2022. Now, we are waiting for the decision from the EU commission and the draft of the amending directive. - In 2018, a review of the list of restricted substances in Annex II was started and finalized in 2021. Several priority substances were assessed with regards to their hazard impacts and use in EEE. The EU Commission has not yet decided if and which substances will be put on Annex II in the future. - The directive as such is under review. The major question is, if those restrictions shall continue to be regulated under a CE directive or if it shall be incorporated into the REACH regulation, e.g. Annex XVII. What will be the impact on industry? Will there be a change on the conformity procedure? How might a change influence other RoHS-like legislation worldwide? The presentation will provide the latest up-to-date information on relevant developments on the EU-RoHS directive. Relevant details, news and changes will be highlighted and industry-relevant recommendations will be given, e.g. how to ensure and document compliance as well as how to optimize the communication within the supply chain.

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**Time:** 11:00 - 11:50 AM

**Room:** Shutters East II

### **Reduced-Order Modeling of Pennes’ Bioheat Equation for Thermal Dose Analysis**

*Francesco Colella (Exponent)*

*Harry Alexander Watson (Exponent)*

**Abstract:** Current trends in powered wearable technologies show that users are spending more time than ever in contact with their devices. Users now wear devices such as smartwatches and fitness trackers up to 24 hours per day to make use of ubiquitous health, exercise, and sleep-tracking features. Long duration contact with these heat dissipating devices increases the thermal dose delivered to user’s skin tissues. Methods for accurate, real-time prediction of the time-temperature response of the skin based on device heat dissipation and external conditions are needed to characterize and monitor the thermal dose received by the user. In this study, reduced-order models (ROMs) based on proper orthogonal decomposition (POD) are developed for modeling transient heat transfer in partially-perfuse tissue in prolonged contact with a heat-generating wearable device. This methodology is able to provide fast, accurate temperature forecasts for arbitrary time-varying boundary conditions, heat sources, and environmental conditions given an appropriate set of training data. The solution of these reduced-order models is shown to be over an order of magnitude faster than a finite-volume implementation of the same scenario, even in one spatial dimension.

**Time:** 1:30 - 2:20 PM

**Room:** Shutters West I

**Cyber Security for IoT, are you ready for market access to the EU after August 1<sup>st</sup>, 2024?**

*Lars Mellanders (Nemko)*

**Abstract:** Cyber security is now not just a very good idea....after August 1st, 2024 it will be a requirement. 2024, may seem like a long way away, but in our world that is very soon. Come find out more and be ready for this change, better now than later!

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**Time:** 1:30 - 2:20 PM

**Room:** Shutters West II

**You Are the People You Surround Yourself With: The Journey of Sustainability Reporting and Supply Chain Readiness**

*Jamie Wallish (Microsoft Corporation, USA)*

**Abstract:** A looming precedent in most businesses today is a need to comply with ESG (Environment, Social, & Governance) and regulatory reporting obligations. The expectations to comply with reporting requirements and meeting due diligence standards in the sustainability space is moving from voluntary to mandatory. The broader reporting market expectation is shifting from investigating operational impact, scope 1 and scope 2, to also include scope 3, your supply chain impact. Reporting at this scale becomes a daunting task when the impact from your supply chain is wildly unknown, it shifts your business to focus on the potential critical hidden issues. This session will articulate how to grapple with supply chain unknown risks in a curated data process and help develop your visibility into riskier business areas and meet regulatory obligations. The session will provide a clear baseline for ESG engagement including the various methods available for data collection and the tools within these methods to support companies in analyzing 3rd party risk and completing supply chain risk disclosures. The session will review methods used within the market to understand the internal controls of your suppliers and how you can hold them accountable to walking the talk. Furthermore, the session will articulate how a workflow approach between these two methods simultaneously deliver awareness into behaviors and organizational internal controls of the entities in your supply chain.

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**Time:** 1:30 - 2:20 PM

**Room:** Shutters East I

**Organizing and Managing Compliance Data**

*Tom Tidwell (Nemko)*

**Abstract:** It is becoming increasingly difficult to keep current with regulations internationally. We need methods and tools to maintain regulatory data that will allow us to define the requirements for new and existing products.

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**Time:** 2:30 - 3:20 PM

**Room:** Shutters West I

### **Cyber Security for Radio Equipment in the EU and Beyond**

*Mark Briggs (UL Verification Services Inc.)*

**Abstract:** On Jan. 12, 2022, the Official Journal of the European Union published delegated regulation 2022/30/ EU, which places cybersecurity, personal data privacy and fraud protection requirements for wireless devices. The rules came into effect Feb. 1, 2022, and become mandatory Aug. 1, 2024. We will give an overview of the requirements, the current progress in the development of standards, what happens if standards are not harmonised prior to August 1st 2024 and how to best prepare to be in a position declare compliance to these regulations. We will also look at other cyber security regulations coming into play in the EU and other countries.

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**Time:** 2:30 - 3:20 PM

**Room:** Shutters West II

### **UKCA Compliance for the UK Market**

*Monrad Monsen (Exponent, USA)*

**Abstract:** This presentation will give an update on UKCA marking requirements after Brexit including the key details about the requirements focusing on information technology products (essentially the same as the CE marking) including the unique features of the UKCA declaration of conformity (DOC) and labeling requirements. I will also address the UKNI (Northern Ireland) and the unique status for the Northern Ireland market.

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**Time:** 2:30 - 3:20 PM

**Room:** Shutters East I

### **Certification Documentation Management: Critical Must Have's for Success!**

*Brunno P. Covolan (Intertek Testing Services)*

**Abstract:** Critical to the engineering discipline is the ability to control and manage design and product specific documents. From product inception to end-of-life, documentation is created and released to communicate critical compliance care-about's and features. These include performance specifications, market study and feedback assessments, user manuals, and many more. Sadly, and all too often, documentation to support product safety certification is not always captured during its most critical time, dealt with as an often-reactive afterthought prior to the safety compliance evaluation. The importance of certification document management cannot be overstated. Implementing a proactive approach that captures compliance critical care-about's can help to favorably influence product deployment costs and avoid product redesigns to lead to a successful and effective product launch.

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**Time:** 3:30 - 4:20 PM  
**Room:** Shutters West I

### **Magnetic Resonance (MR) Safety Testing for Active and Passive Medical Devices**

*Ji Chen (University of Houston)*

*Dr. Kaula (University of Houston)*

**Abstract:** Approximately 40 million MRI scans are performed in the US annually and 100 cases of thermal injury are reported to the MAUDE database annually.

Close to 5% of all subjects scanned by MRI have medical implants and carry a higher risk of injury. To ensure public safety, MRI labeling should be provided to MRI technologists for all implantable devices.

In this paper, we will introduce the standards for both, passive and active devices, used for MRI labeling. These standards are involving, consequently, MRI labeling is a moving target. The technical background and physics of these standards will be discussed so that manufacturers can use the essences of these standards to obtain MRI labeling. Early MR evaluation of device versus finished device characterization will be discussed. Techniques on how to combine the standard testing procedures with recent technological advancements will be presented for safe MRI labeling submission.

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**Time:** 3:30 - 4:20 PM  
**Room:** Shutters West II

### **India Mandatory Testing & Certification of Telecommunication Equipment (MTCTE)**

*Monrad Monsen (Teradata Corporation, USA)*

*Grant Schmidbauer (Teradata Corporation, USA)*

**Abstract:** This session will moderated by Monrad Monsen, providing an overview of the MTCTE certification process with emphasis on the upcoming Phase 3 and 4 scope expansion that requires compliance by 1 July 2023. At the end of this session, we will open up for audience feedback and informal discussion regarding the challenges foreign manufacturers (those outside of India) face in obtaining TEC certification and what might be the Telecommunications Engineering Centre (TEC) intentions for future phased scope expansions. This end of session part will also include some back and forth discussion with Grant Schmidbauer, based on some real-world projects that Nemko has handled, outlining some pitfalls that manufacturers have faced in obtaining TEC certification.

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**Time:** 3:30 - 4:20 PM  
**Room:** Shutters East I

### **An Overview of the Latin American Regulatory Landscape**

*Tom Tidwell (Nemko)*

**Abstract:** Regulations in Latin American countries are changing and requirements are being added for Cyber Security and Energy Efficiency.

# IEEE ISPCE 2023

IEEE International Symposium on  
Product Compliance Engineering

**MAY 1-3, 2023 | DALLAS, TEXAS**

[psessymposium.org](https://psessymposium.org)

## CALL FOR PAPERS

### Organizers

#### General Co-Chairs

**Jim Bender P.E.**  
Intertek

**Bansi Patel**  
BRP Consultants

#### Technical Program Chair

**Grant Schmidbauer**  
Nemko USA

#### Technical Program Secretary

**Mariel Acosta-Geraldino**  
IBM

#### Treasurer

**David Castaneda**  
Nemko USA

### Important Dates

#### February 15, 2023

Formal Paper/Reviewable  
Presentation Submission  
Deadline

#### March 15, 2023

Acceptance Notification  
Deadline

#### April 1, 2023

Final Camera-ready Paper/  
Presentation Submission  
Deadline

### Conference Dates

**May 1-3, 2023**

Annually, the IEEE International Product Safety Engineering Society (PSES) hosts a premier symposium (ISPCE) on current topics relevant to people who are challenged to make products safe and compliant with ever-changing global codes, standards, & regulations.

The fundamental activities covered in this symposium are critical aspects of virtually all Engineering endeavors AND they are now consuming greater time and attention from business leaders. This event provides an opportunity for inclusion and crosscompany collaboration that results in collective educational growth for all participants.

### The Ask

- ✓ With so many recent regulatory changes, including the publication of a new National Electrical Code, record attendance is anticipated. Increase your recognition as an expert and contribute to IEEE.
- ✓ Support Product Safety Engineering Society by educating our audience of members & guests at ISPCE 2023.
- ✓ Submitting a presentation or formal paper is both a personally & professionally rewarding experience.
- ✓ Visit the Authors & Presenters page on the ISPCE 2023 website for author registration, comprehensive submission instructions, and the biography, paper and presentation templates to be used.
- ✓ Compliance Management – Technical and Documentation

### Decorum

Educational presenters speaking at ISPCE 2023, are permitted to reference the company they represent and/or company activities, when necessary for context within their presentation.

However, other promotional activities or sales should be conducted outside of the actual presentations.

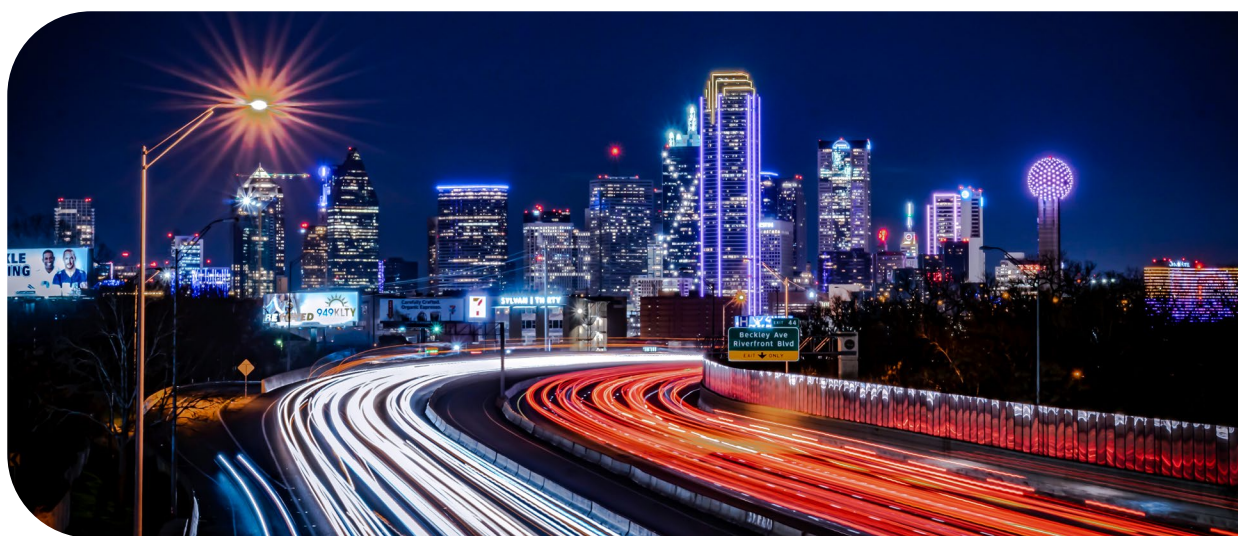


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## Topics for ISPCCE 2023

The IEEE international Product Safety Engineering Society seeks original and unpublished formal papers, presentations without formal papers, tutorials, and workshops on any and all aspects of product safety and compliance engineering - including, but not limited to:

- » Arc Flash
- » Batteries & Energy Storage Systems
- » Codes & Standards Development
- » Compliance Management, Compliance and Technical Documentation Management
- » Cybersecurity
- » Data Center Safety
- » EMC & Wireless Compliance
- » Emerging Technologies & Innovations
- » Energy Efficiency Codes Engineering & Safety Science
- » Environmental Regulations, Sustainability & Circular Economy
- » Importance of Ethics for Effective Compliance
- » Field Inspections & Evaluations
- » Forensics, Failure & Risk Analysis
- » Global Hazardous Locations
- » Global Market Access
- » Grounding & Bonding
- » Hazard Based Safety Evaluations
- » Instrumentation and Laboratory Equipment
- » Introductory or Advanced Design for Compliance
- » Laboratory Safety
- » Legal Regulations, Directives & Consumer Protection
- » Medical Devices
- » Product Labeling
- » Safety of Education and Healthcare facilities



## NOTES

This image shows a full page of blank handwriting practice paper. It features evenly spaced horizontal blue lines across the entire page, providing a guide for letter height and placement. There are no margins, text, or other markings present.

## NOTES

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



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